

2005
R06
2638

The Silver Fir Beetles
Pseudohylesinus granalatus (Lec.) and P. grandis Sw.

Silver fir beetles are killing Pacific silver fir over a wide area in western Washington and northwestern Oregon. This outbreak, which started in 1947, reached a peak of 652,230 acres in 1954, and declined to 114,720 acres in 1955, is causing real concern to private and public land-managing agencies.

What they are - Two species of beetles are killing silver fir. Adults are red-dish-brown to black, compact, cylindrical beetles that are evenly rounded at both ends. They are 1/8 to 1/4 inch long. On their wing covers there are variable sized patches of brown and gray scales which give the beetles a mottled appearance. The larvae are small, legless, cream-colored, semi-curved grubs with light brown heads.

What they do - The adults bore through the outer bark and construct transverse egg galleries in the cambium layer. The larvae work up and down from these galleries consuming the phloem and inner bark. They overwinter mainly as immature larvae and pupate in late June or early July of the following year. Only one generation a year occurs with both species. Some adults emerge from their brood galleries and hibernate beneath the bark at the base of green trees. These beetles have the habit of attacking and killing small patches of the tree with the tree remaining green until finally killed. Successful attacks usually occur first near the base of the tree.

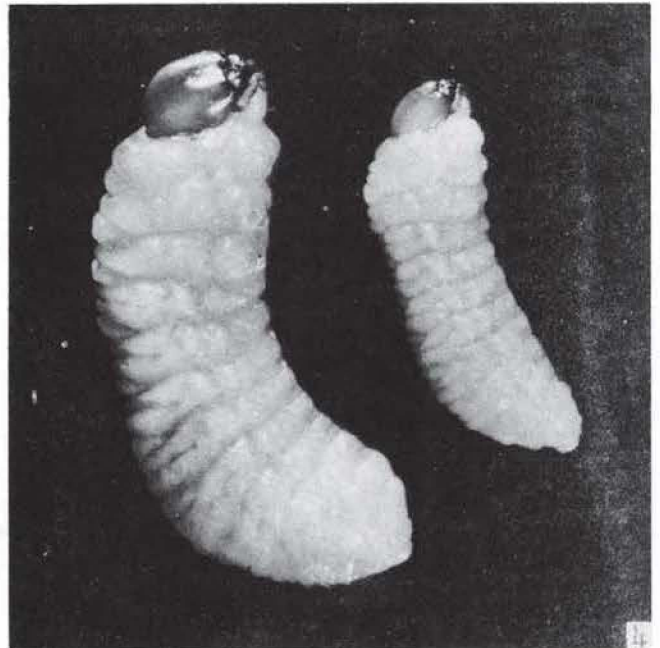
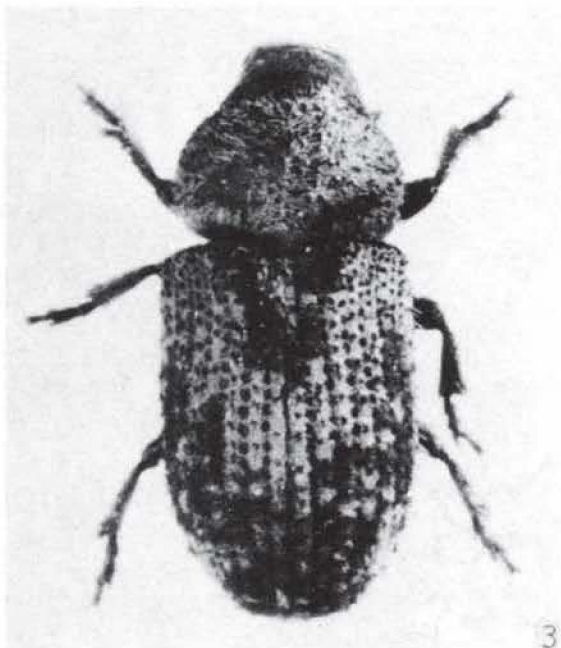
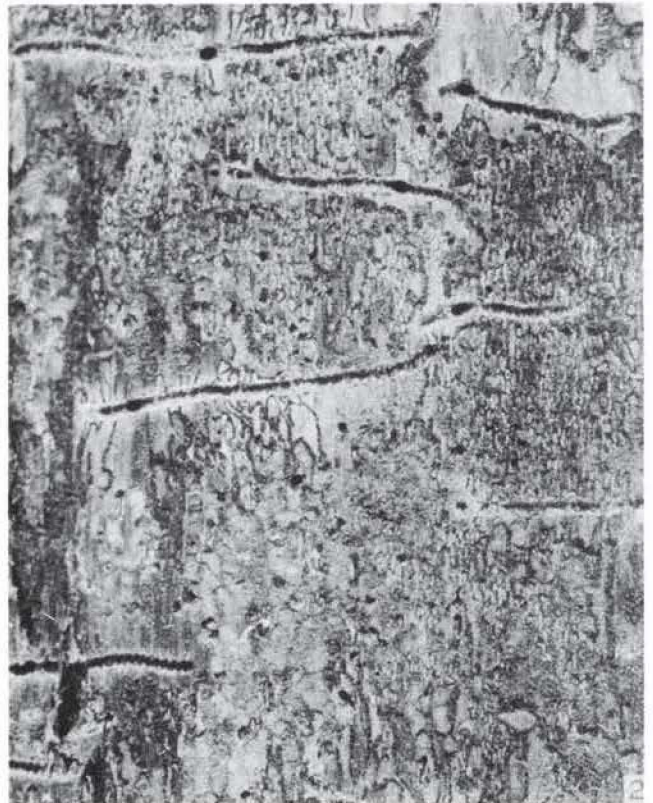
Conditions favoring outbreaks - Ordinarily these beetles attack only windthrown, felled or seriously weakened trees. However, since 1947 these beetles have found conditions favorable for their attacks and have developed at a rapid rate. Killing occurs most frequently and is most severe in overmature stands and least frequently and is less severe in young stands. Soil conditions, stand competition and weather are among possible basic causes of the outbreak; although the real underlying causes of this outbreak are unknown.

Control - There are no known control measures for these beetles. Timely salvage of infested and recently dead trees is strongly recommended. Trees must be utilized for pulpwood within four or five years after death.

Survey needs - Three types of surveys are essential for planning salvage operations: (1) Detection surveys to assess the general situation, judge the size and extent of the problem and determine the need for more intensive surveys; (2) reconnaissance surveys of the inventory type to obtain detailed information on the location, extent and condition of the dead and threatened timber on specific areas; and (3) annual cruising of sample plots to provide data for long-term planning and timber cutting priorities.

What to look for - Attacked trees can be recognized by the fading foliage during aerial surveys conducted preferably in August of the year following attack. Occasionally, during hot summers, the dead needles fall before completely fading. Attacked trees can be recognized on ground surveys by the red boring dust in bark crevices, on moss and lichens adhering to the bark, and on the ground at the base of the trees.

THE SILVER FIR BEETLES
Pseudohylesinus granulatus (Lec.) and P. grandis Sw.



1. New beetle galleries and white mycelial fungus under bark of dead silver fir.
2. Completed galleries of silver fir beetles.
3. P. grandis adult.
4. P. granulatus larva (left); P. grandis larva (right).



Figure 1. Typical galleries of Pseudohylesinus bark beetles on the inner bark surface showing horizontal egg galleries and vertical larval galleries.



A

B

C

Figure 2. Adult Pseudohylesinus bark beetles; A, granulatus; B, grandis, female; C, grandis, male. All X 5.